

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 93-160

WATER RECLAMATION REQUIREMENTS FOR:

CITY OF PALO ALTO
PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board), finds that:

1. The City of Palo Alto (hereinafter called Producer) operates a tertiary wastewater treatment plant and water reclamation facility at 2501 Embarcadero Way, Palo Alto. The Producer submitted a Reclamation Master Plan dated April 1992 for the use of reclaimed water throughout the service area of the Regional Water Quality Control Plant (RWQCP).
2. The Producer proposes to divert approximately nine million gallons per day (9 mgd) of tertiary-treated effluent from its Regional Water Quality Control Plant and to further treat the effluent to acceptable levels at its reclamation facility for various reclaimed water uses. Current and potential reclaimed water users and use areas have been identified as listed below and shown in Figure 1 (attached). Users are not required to limit the quantity of use to the estimated usage listed below. Other potential users may be identified in the future and added to the following list.

<u>Users</u>	<u>Estimated Usage (mgd)</u>
City Parks and Schools	2.5
Stanford University	1.6
Shoreline Golf Course	1.2
Sharon Heights Golf Course	1.0
Palo Alto Golf Course	0.8
Stanford Research Park	0.5
NASA Ames Research Center	0.5
Truck fill stations	0.5
Caltrans	0.2
Palo Alto Muni Service Center	0.2

3. The Producer will permit specific reuse projects located within the areas listed in Finding 2 of this Order by obtaining Reclaimed Water Use Agreements with individual Users. The Producer will design and incrementally install reclaimed water transmission facilities to serve these projects. Users will submit engineering reports for each individual project to the Producer for approval. The Producer will maintain these reports at its facility.

4. The Producer will continue to investigate other potential reuse strategies such as groundwater recharge, streamflow augmentation, and dual water supply for new construction. This will enable the Producer to move towards achieving a goal of reusing the maximum possible amount of reclaimed water.
5. The production and uses of reclaimed water are currently permitted under Order No. 86-33, adopted by the Board on May 21, 1986, which prescribes water reclamation requirements for irrigation of the golf courses and parks in the cities of Palo Alto and Mountain View. Up to two million gallons per day of tertiary-treated effluent was diverted, and further treated to unrestricted use quality for use on the parks and golf courses.
6. Board Order No. 91-042 provided "blanket" authorization for tanker-truck distribution of reclaimed water and the expansion of existing fixed irrigation system projects already subject to water reuse requirements. Reclaimed water distribution at the truck fill stations operated by the Producer are currently permitted under Order No. 91-042.
7. This Order incorporates the requirements of Order No. 86-33 and Order No. 91-042, and therefore supersedes both Orders.
8. California Water Code Section 13512 states that it is the intention of the legislature that the State undertake all possible steps to encourage development of water reclamation facilities so that reclaimed water may be made available to help meet the growing water demands of the State.

Section 13523 provides that a regional board, after consulting with and receiving the recommendations of the State Department of Health Services, and if it determines such action to be necessary to protect the public health, safety, or welfare, shall prescribe water reclamation requirements for water which is used or proposed to be used as reclaimed water. The use of reclaimed water for the purposes specified in Finding 2, could affect the public health, safety, or welfare, and requirements for those uses are, therefore, necessary in accordance with the California Water Code.

In Section 13550, the Legislature defines the use of potable domestic water for the irrigation of greenbelt areas, including but not limited to cemeteries, golf courses, parks, and highway landscaped areas, as a waste or an unreasonable use of such water within the meaning of Section 2 of Article X of the California Constitution when suitable reclaimed water is available.

Section 13576(e) states that the use of reclaimed water has proven to be safe from a public health standpoint and that the State Department of Health Services is updating regulations for the use of reclaimed water.

9. This Order's requirements conform with and implement the water reclamation criteria of the State Department of Health Services (Title 22, Division 4, Chapter 3, Sections 60301-60355 of the California Code of Regulations [CCR]) to protect the public health, safety, and welfare.

10. The Board amended its Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on September 16, 1992, and the State Water Resources Control Board (State Board) approved it on April 27, 1993. The Basin Plan supports water reclamation and further states that the disposal of wastewater to inland, estuarine, or coastal waters is not considered a permanent wastewater disposal solution where the potential exists for conservation and reclamation. The Basin Plan prescribes water quality objectives for reclaimed water, as well as for ground and surface waters of Santa Clara County. The Basin Plan identifies beneficial uses of the underlying groundwaters as:

- Industrial service and process water supply
- Municipal and domestic supply
- Agricultural supply

The Basin Plan identifies beneficial uses of the surface waters of South San Francisco Bay and its tributaries as :

- Water contact recreation
- Non-water contact recreation
- Wildlife habitat
- Preservation of rare and endangered species
- Estuarine habitat
- Fish migration
- Fish spawning
- Industrial service and process supply
- Shellfish harvesting
- Navigation
- Commercial and sport fishing

11. Effluent limitations of this Order are based on applicable CCR Title 22 regulations, the Basin Plan, State Plans and policies, current plant performance, and best professional judgement. The limitations are considered to be those attainable by best available technology, in the judgment of the Board.
12. The proposed uses of reclaimed water will maintain and enhance natural resources, and thus this Order is categorically exempt from the provisions of the California Environmental Quality Act in accordance with Title 14, California Administrative Code, Chapter 3, Section 15307.
13. The Board has notified the Users, Producer, and interested agencies and persons of its intent to prescribe water reclamation requirements for the proposed discharges, and has provided them with an opportunity for a public hearing and to submit their written views and recommendations.
14. The Board, at a public meeting, heard and considered all comments pertaining to these proposed uses of reclaimed water.

IT IS HEREBY ORDERED, that the City of Palo Alto (Producer and User) and the Users who have signed Reclaimed Water Use Agreements pursuant to this Order, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Reclaimed Water Quality Specifications

1. Unrestricted Quality Reclaimed Water (2.2 MPN)

The Producer shall assure that reclaimed water used for industrial reuse, irrigation in areas with a high probability of direct public contact as may occur in portions of parks, playgrounds, schoolyards, golf courses that include residential development with exposure to irrigation spray, and other areas where the public has similar exposure, shall be an adequately oxidized, coagulated, clarified, filtered, and disinfected water (as defined in CCR Title 22, Division 4, Chapter 3, Sections 60301-60335) that meets the following quality limits at all times:

- | | | |
|----|-------------------------|---|
| a. | CBOD (5-day, 20°C) | 20 mg/L daily maximum
10 mg/L monthly average |
| b. | Dissolved Oxygen | 1.0 mg/L minimum |
| c. | Dissolved Sulfide | 0.1 mg/L maximum |
| d. | Turbidity | 2 NTU maximum daily average operating turbidity and not exceeding 5 NTU more than five (5) percent of the time during any 24-hour period. |
| e. | Total coliform bacteria | At any point downstream of the disinfection facilities after adequate contact with disinfectant, the median number of total coliform organisms shall not exceed 2.2 MPN/100 mL as determined from the bacteriological results of the last seven (7) days for which analyses have been completed, and the number of total coliform organisms shall not exceed 23 MPN/100 mL in any sample. |

2. Restricted Quality Reclaimed Water (23 MPN)

The Producer shall assure that reclaimed water to be used for irrigation of golf courses, cemeteries, freeway landscapes, and landscapes in other areas where the public has restricted access or exposure, shall at a minimum be an adequately oxidized and disinfected water that meets the following quality limits prior to delivery for any such use at all times:

- | | | |
|----|--------------------|--|
| a. | CBOD (5-day, 20°C) | 20 mg/L daily maximum
10 mg/L monthly average |
|----|--------------------|--|

- | | | |
|----|-------------------------|--|
| b. | Dissolved Oxygen | 1.0 mg/L minimum |
| c. | Dissolved Sulfide | 0.1 mg/L maximum |
| d. | Total coliform bacteria | At any point downstream of the disinfection facilities after adequate contact with disinfectant, the median number of total coliform organisms shall not exceed 23 MPN/100 mL as determined from the bacteriological results of the last seven (7) days for which analyses have been completed, and the number of total coliform organisms shall not exceed 240 MPN/100 mL in any two consecutive samples. |
3. The Producer shall discontinue delivery of reclaimed water to Users during any period in which it has reason to believe that the limits for that use as specified in A.1 or A.2 of this Order are not being met. The delivery of reclaimed water shall not be resumed until all conditions which caused the limits to be violated have been corrected.
 4. The State Department of Health Services is currently revising the Title 22 regulations for water reuse. When revised regulations are finalized, the Executive Officer may authorize changes to the restricted and unrestricted reclaimed water uses consistent with those regulations.

B. Prohibitions

1. The treatment, storage, distribution, or reuse of reclaimed water shall not create a nuisance as defined in section 13050(m) of the California Water Code.
2. No reclaimed water used for irrigation shall be applied during periods of rainfall or when soils are saturated such that runoff occurs.
3. No reclaimed water used for irrigation shall be allowed to escape to areas outside the designated use areas by surface flow or by airborne spray.
4. Reclaimed water shall not be applied to park, golf course, or landscape areas in such a manner or at such times that may expose golfers, picnickers, or other individuals, or that may cause picnic tables, and other food and drinking outlets to come into contact with airborne spray droplets.
5. No reclaimed water shall be discharged from the treatment facilities, irrigation holding tanks, storage ponds, man-made marsh, or other containment, other than for irrigation or industrial reuse in accordance with this Order or for discharge to a municipal sewage collection system.
6. Reclaimed water shall not be used as a domestic or animal water supply. There

shall be no cross-connections between the potable water supply and pipes containing reclaimed water. Supplementing reclaimed water with water used for domestic supply shall not be allowed except through an air-gap separation. An air-gap or reduced pressure principle backflow device shall be provided at all domestic water service connections to reclaimed water use areas.

C. Provisions

1. Order No. 86-33 is hereby rescinded. This Order supersedes Order 91-042 for all uses specified by that Order.
2. Reclaimed Water Use Agreements, obtained by the Producer with each User, form the basis of permitted reclaimed water use by specific Users. Reclaimed Water Use Agreements shall specify self-monitoring requirements for each User, based on the attached self-monitoring program. If someone other than the User is responsible for applying the reclaimed water (Distributor), e.g. a truck hauler, then the User shall inform them of these requirements in a written agreement or other suitable manner. A Distributor shall fill out a Reclaimed Water Release Form when receiving reclaimed water from the Producer.
3. A copy of the Reclaimed Water Use Agreement and this Order must be provided to the Users by the Producer. The Users and Distributors must have these available at all times for inspection by Regional Board staff, the Producer, or State/County Health Officers. The Distributors must also carry the Reclaimed Water Release Form at all times.
4. The Producer shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer. The Producer is responsible for collecting reports from users. Users are responsible for submitting on-site observation reports and use data to the Producer, who will compile and file self-monitoring reports with the Regional Board.
5. The Producer will be responsible for ensuring that reclaimed water meets the quality standards of this Order and for operation and maintenance of major transport facilities and associated appurtenances. Users will be responsible for the application of reclaimed water on their respective use areas and associated operations and maintenance.
6. The Producer and Users shall maintain in good working order and operate as efficiently as possible any facility or control system installed by the Producer or Users to achieve compliance with the water reclamation requirements.
7. The Producer and Users shall provide employee training to assure proper operation of reclamation facilities, worker protection, and compliance with this Order.
8. The Producer and Users shall assure that all above ground equipment, including pumps, piping, storage reservoir, and valves, etc. which may at any

time contain reclaimed water shall be adequately and clearly identified with warning signs. The Producer and Users shall make all necessary provisions to inform the public that the liquid being distributed is reclaimed water and is unfit for human consumption.

9. Reclamation facilities shall be operated in conformance with the California Department of Health Service "Guidelines for Use of Reclaimed Wastewater for Irrigation and Impoundment" and "Guidelines for Worker Protection at Reclamation Use Areas" and the American Water Works Association, California-Nevada Section's *Guidelines for the Distribution of Non-potable Water*.
10. The Producer and Users shall permit the Board or its authorized representative in accordance with California Water Code Section 13267(c):
 - a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the Order.
 - b. Access to and copy of any records that must be kept under the conditions of this Order.
 - c. Inspection of any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order.
 - d. To photograph, sample, and monitor for the purpose of assuring compliance with this Order.
11. The Board will revise this Order periodically and may revise these requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on 12/15/93.


STEVEN R. RITCHIE
EXECUTIVE OFFICER

Attachments:

- A. Figure 1 -- PARWQCP Water Reclamation Reuse Areas
- B. DOHS Guidelines for Use of Reclaimed Wastewater for Irrigation and Impoundment
- C. DOHS Guidelines for Worker Protection at Water Reclamation Use Areas
- D. Self-Monitoring Program

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

SELF-MONITORING PROGRAM

FOR

CITY OF PALO ALTO
PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT
PALO ALTO
SANTA CLARA COUNTY

ORDER NO. 93-160

SELF-MONITORING PROGRAM

CITY OF PALO ALTO PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT RECYCLED WATER USERS ORDER NO. 93-160

I. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and the San Francisco Bay Regional Board's Resolution No. 73-16.

The principle purposes of a monitoring program by a Producer of reclaimed water, also referred to as a self-monitoring program, are:

1. To document compliance with water reclamation requirements and prohibitions established by this Regional Board; and
2. To facilitate self-policing by the Producer in the prevention and abatement of pollution arising from water reclamation.

II. RECLAIMED WATER SAMPLING AND ANALYSIS

The Producer shall document effluent quality under their regular facility Waste Discharge Requirements self-monitoring program (Order No. 93-085). See below for any violations related to the water reuse program.

III. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violation of Requirements

In the event the Producer is unable to comply with conditions of the water reclamation requirements and prohibitions, the Producer shall notify the Regional Board in writing within two weeks of the non-compliance. The written report shall include pertinent information explaining reasons for non-compliance and shall indicate what steps are being taken to prevent the problems from recurring.

2. Annual Self-Monitoring Report

An annual report for each calendar year shall be submitted to the Board by January 30 of the following year. The report shall include:

- a. Letter of Transmittal: A letter transmitting self-monitoring reports should accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Producer has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory.

The transmittal letter shall contain a statement by the Producer, or the Producer's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

- b. Tabulations of the results from each required analysis by Producer specified in Table 1 (Attachment A) by date, time, type of sample, and station.
- c. A list of existing and new authorized reclaimed water Users, including the name, location, and projected annual flow to be delivered.
- d. Tabulation of inspections and observations of reuse sites, including User's standard observations and random inspections by the Producer.
- e. A summary of effluent violations related to water reclamation, violations found during inspection of reuse sites, corrective actions taken, and any changes to or revoking of User authorizations.
- f. A summary of ground water monitoring conducted in accordance with provisions of the Environmental Impact Report completed for the reclamation project.
- g. An update regarding development of the Reclamation Master Plan, including planning, design, and construction of facilities, and preparation of required reports and technical documents.

IV. STANDARD OBSERVATIONS

- 1. Evidence of runoff of reclaimed water from the site (show affected area on a sketch, and estimate volume).
- 2. Odor of wastewater origin from irrigation site: If present, indicate apparent source, characterization, direction of travel, and any public use areas or offsite facilities affected by the odors.

3. Evidence of ponding of reclaimed water, and/or evidence of mosquitoes breeding within the irrigation area due to ponded water.
4. Warning signs properly posted to inform public that irrigation water is reclaimed water, which is not safe for drinking.
5. Evidence of leaks or breaks in the irrigation system pipelines or tubing.
6. Evidence of plugged, broken, or otherwise faulty drip irrigation system emitters or spray irrigation sprinklers.

V. DESCRIPTION OF SAMPLING AND OBSERVATION STATIONS

1. RECLAIMED WATER

<u>Station</u>	<u>Description</u>
E-001	Location at the Palo Alto Regional Water Quality Control Plant where a representative sample of treatment plant effluent being diverted for reclamation can be obtained and total diverted flow can be measured.

2. LAND OBSERVATION STATIONS

<u>Station</u>	<u>Description</u>
L-1 to L-n	Locations at a sufficient number of points at reuse areas in order to ensure compliance with water reclamation requirements.

3. IMPOUNDMENT FACILITIES

<u>Station</u>	<u>Description</u>
P-1 to P-n	Locations at points along the periphery of each storage, ornamental, golf course, or other pond or impoundment.


VI. SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

1. The self-monitoring program is applicable during the periods when reclaimed water is in use. The Producer and Users are required to perform observations, sampling, measurements, and analyses according to the schedule given in Table 1 (Attachment A).

2. The Producer shall require the Users to conduct a complete inspection of all irrigation lines, sprinklers, and emitters at least once each year during the dormant season. A report of the findings of these inspections, including descriptions of any significant repairs or modifications made to the distribution systems, shall be submitted in the annual report (due January 30 of each year).

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with Water Reclamation Requirements established in Regional Board Order No. 93-160.
2. Has been revised and ordered by the Executive Officer on June 20, 1995. This Self-Monitoring Program supersedes the previous program and amends the water reclamation requirements adopted by the Board on December 15, 1993.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Producer, and revisions will be ordered by the Executive Officer.



STEVEN R. RITCHIE
EXECUTIVE OFFICER

Attachment: Table 1 - Schedule for Sampling, Measurements, and Analysis

File No. 2189.8103 (SMM)

ATTACHMENT A

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS
Palo Alto RWQCP - Water Reclamation Req'ts

SAMPLING STATIONS	E-1			All L	All P
TYPE OF SAMPLE	Grab	C-24	Cont.	Obs.	Obs.
Flow Rate (gallons/day)			D	Q ¹	Q ¹
Total Coliform (MPN/100ml)	3/W ²				
Turbidity (NTU)		3/W ²			
Dissolved Oxygen (mg/l)	3/W ²				
Dissolved Sulfides (mg/l) (if DO < 1 mg/l)	3/W ²				
pH (units)	3/W ²				
Chlorine Residual (mg/l)			D ²		
Applicable Standard Observations				A ³	A ³

LEGEND FOR TABLE 1

Type of Sample

Grab = Instantaneous grab sample
C-24 = 24-hour composite sample
Cont. = Continous monitoring (recorder)
Obs. = Observation

Sampling Frequency

D = Daily
3/W = Three times per week
W = Weekly
2/M = Twice per month
Q = Quarterly
A = Annual

¹ Flow totals for each User will be compiled by the Producer on a quarterly basis. Daily average flow will be calculated from these quarterly totals and reported for each User in the Producer's annual report.

² When producing reclaimed water.

³ Observations that the Producer requires each User to complete when reclaimed water is being used. The Producer will establish User self-monitoring requirements that depend on the size and complexity of each site, as a condition of each User's permit.